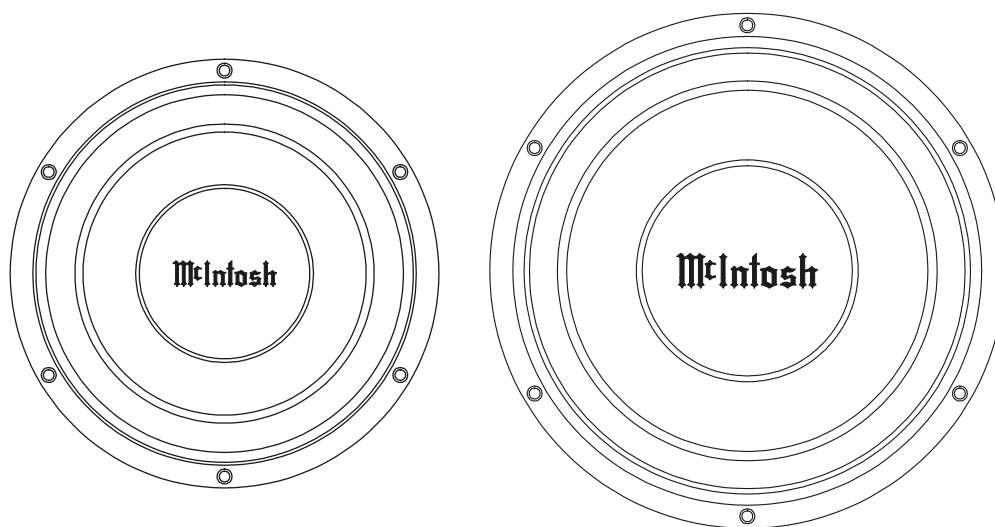


MS100 / MS120 Subwoofers



MS100
MS120

Thank You

Your decision to own this McIntosh MS100 or MS120 Subwoofer ranks you at the very top among discriminating music listeners. You now have "The Best." The McIntosh dedication to "Quality," is assurance that you will receive many years of musical enjoyment from this unit.

Please take a short time to read the information in this manual. We want you to be as familiar as possible with all the features and functions of your new McIntosh.

Please Take A Moment

The serial number, purchase date and McIntosh dealer name are important to you for possible insurance claim or future service. The spaces below have been provided for you to record that information:

Serial Number: _____

Purchase Date: _____

Dealer Name: _____

Technical Assistance

If at any time you have questions about your McIntosh product, contact your McIntosh dealer who is familiar with your McIntosh equipment and any other brands that may be part of your system. If you or your dealer wish additional help concerning a suspected problem, you can receive technical assistance for all McIntosh products at:

McIntosh Sales Corporation
661 W. Redondo Beach Blvd.
Gardena, CA 90247
Phone: 888-979-3737
Fax: 310-217-9288

Customer Service

If it is determined that your McIntosh product is in need of repair, you can return it to your dealer. You can also return it to the McIntosh Laboratory Service Repair department. For assistance on factory repair return procedure, contact the McIntosh Repair Department at:

McIntosh Laboratory, Inc.
2 Chambers Street
Binghamton, New York 13903
Phone: 607-723-3515
Fax: 607-723-1917

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NOTES:

1. *Do not exceed the power handling capacity of the MS100 or MS120 Subwoofer(s).*
2. *For additional connection information, refer to the owner's manual(s) for any component(s) connected to the MS100 or MS120 Subwoofers.*

IMPORTANT SAFETY INSTRUCTIONS!

**PLEASE READ THEM BEFORE
OPERATING THIS EQUIPMENT.**

General:

1. Read all the safety and operating instructions, contained in this owner's manual, before operating this equipment.
2. Retain this owner's manual for future reference about safety and operating instructions.
3. Adhere to all warnings and operating instructions.
4. Follow all operating and use instructions.
5. **Warning: To reduce risk of fire or electrical shock, do not expose this equipment to rain or moisture. This unit is capable of producing high sound pressure levels. Continued exposure to high sound pressure levels can cause permanent hearing impairment or loss. User caution is advised and ear protection is recommended when playing at high volumes.**

Installation:

6. Do not attempt to install the unit yourself, please have an authorized dealer install the unit for you.
7. Locate the equipment away from heat sources such as heater ducts that produce heat.
8. Mount the equipment only as described in this owner's manual.

Connection:

9. Connect this equipment only to the type of power amplifier as described in this owner's manual.
10. Route cords so that they are not likely to be pinched by items placed upon or against them, paying particular attention to the point where they exit from the instrument.

Care of Equipment:

11. Clean the instrument by dusting with a dry cloth.
12. Do not permit objects of any kind to be pushed into and/or fall into the equipment through enclosure openings. Never spill liquids into the equipment through enclosure openings.

Repair of Equipment:

13. Refer servicing to a qualified service personnel under the following conditions:
 - A. The cords or the connectors have been damaged.
 - B. Objects have fallen onto, or liquid has been spilled into the equipment.
 - C. The equipment has been exposed to rain or water.
 - D. The equipment does not operate normally by following the operating instructions contained within this owner's manual.
 - E. The equipment has been dropped or damaged in any way.
 - F. The equipment exhibits a distinct change in performance - this indicates a need for service.
14. When replacement parts are required, be sure the service technician has used replacement parts specified by McIntosh or have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock, or other hazards.
15. Upon completion of any service or repairs to this product, ask the service technician to perform safety checks to determine that the product is in proper operating condition.

Introduction

The McIntosh MS100 and MS120 Subwoofers offer extremely smooth frequency response, low distortion, high sensitivity and high power handling capability. When these subwoofers are combined with matching McIntosh component loudspeakers and McIntosh Power Amplifiers you will enjoy music reproduction in your vehicle that meets McIntosh traditional standards of excellence, "The Sound of the Music Itself."

Performance Features

- **Patented LD/HP Technology**

The patented LD/HP¹ Magnetic Circuit Design dramatically reduces second harmonic distortion, improves speaker linearity and provides higher output.

- **Die Cast Frames**

Die cast aluminum frames ensure maximum rigidity, dimensional integrity and lasting value. Machined front and back plates provide precision attachment to the magnet.

- **High Power Handling**

Thick front and back plates, a die-cast chassis, heavy magnet and aluminum sleeves all contribute as a heat sink to reduce power compression and ensure a long and stable operating life.

- **Extended Cone Excursion**

A one-half inch thick front plate and one-quarter inch voice coil overhang allow greater cone-excursion for extended bass response.

- **Type V Strontium Ferrite Magnet**

The Strontium V magnet ensures high loudspeaker efficiency, a high heat tolerance and reliable operation at high power levels.

- **Special Materials and Durable Finish**

Blue polypropylene cones with butyl rubber surrounds have low Q with excellent stability over a wide temperature and humidity range. The Black Powder Coat finish is both attractive and durable.

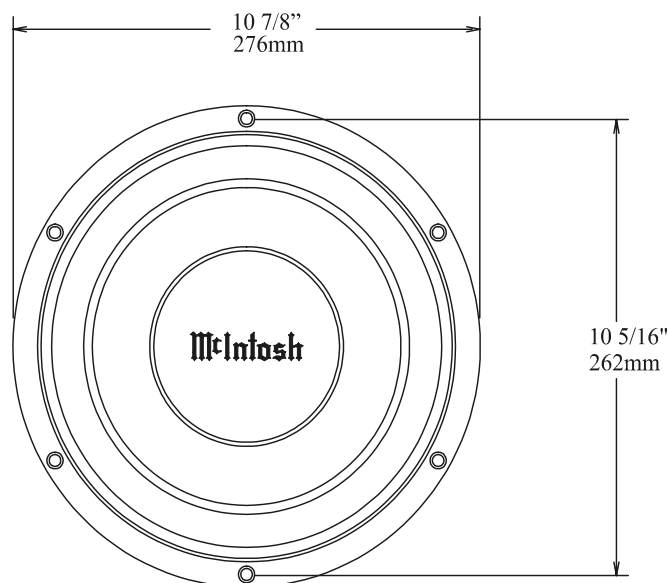
- **Easy Installation**

Gold plated spring terminals accommodate up to an 8 gauge wire.

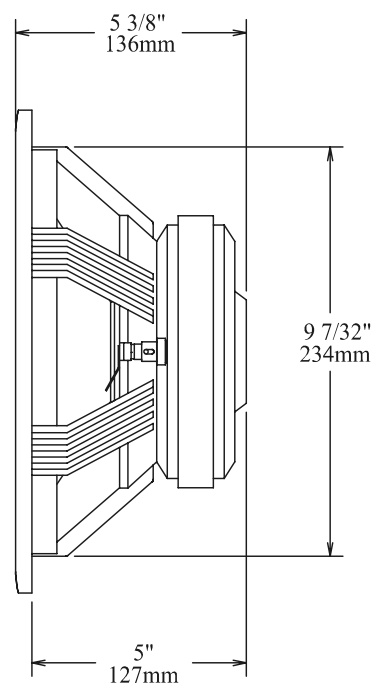
¹ Patent Number 5,151,943

Overall Dimensions

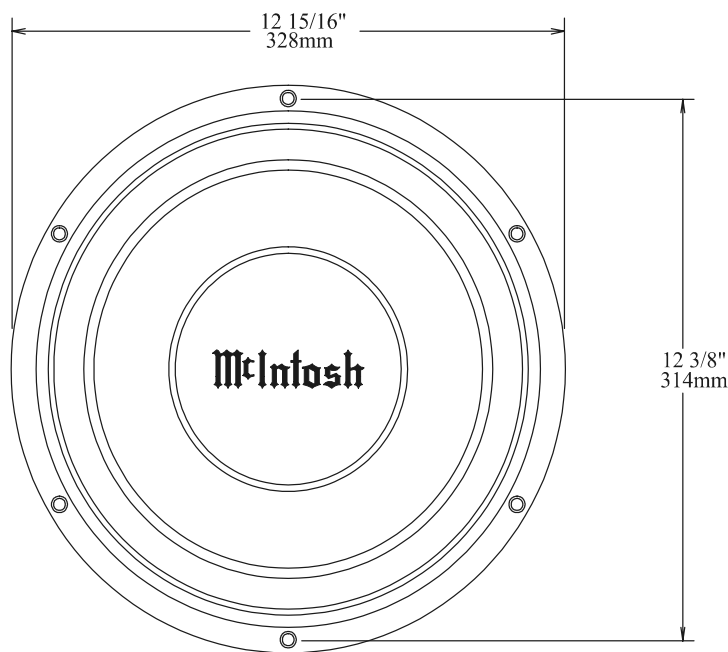
Front View of the MS100



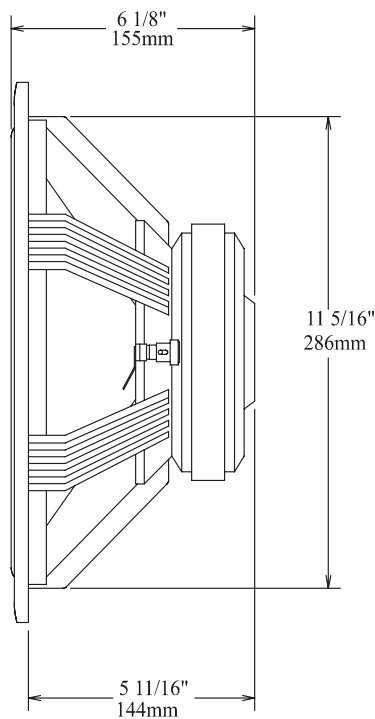
Side View of the MS100



Front View of the MS120



Side View of the MS120



Installation and Enclosures

It is recommended that a qualified professional install all McIntosh Automotive Products.

McIntosh Subwoofers are designed to operate in the bass frequency range below 120Hz and should be used in conjunction with McIntosh Component Loudspeaker combinations to reproduce the full audio frequency range. Subwoofers need not be physically close to midrange and tweeter speakers in order to maintain good imaging and system frequency balance.

A custom loudspeaker enclosure constructed according to the recommendations in this manual will result in the best performance from a McIntosh subwoofer. The enclosure should be constructed with high-density particleboard. To ensure minimum cabinet vibration, the enclosure panels should be at least $\frac{3}{4}$ inch thick, with adequate cross bracing to increase stiffness. Ports may be constructed with plastic pipe or cardboard tubing. The subwoofer should be mounted in the enclosure so it radiates in a horizontal plane.

Refer to the notes, charts and drawings in this manual for recommended dimensions of three different types of subwoofer enclosures and four different maximum power ratings.

NOTES:

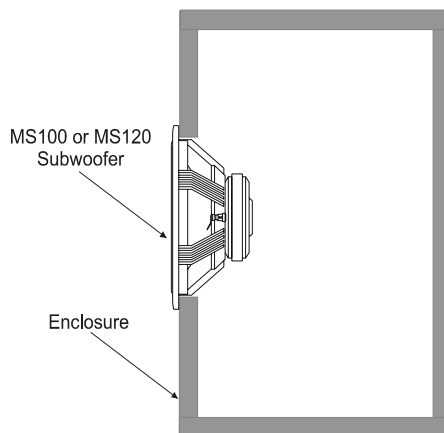
1. Use the enclosed template to locate and cut the loudspeaker mounting holes.
2. Install the Subwoofer using the supplied gasket.
3. Enclosure dimensions of Depth, Width and Height listed in the charts are internal measurements in inches. Volume measurements listed in the charts are of the air in the enclosure in cubic feet and do not take into account the volume occupied by the port, the loudspeaker or any internal braces you may have added. Port length is in inches and port surface area is in square inches.
4. All ports are round with an inside diameter of 4 inches and flared at both ends. If you wish to use a Non-Round Port or a different Port diameter, use the formulas below to determine dimensions. For Bandpass enclosures, the Volume in the formula must be the Front Volume.
5. All Resonance frequency indications are in Hertz.
6. Max Power is in Watts.

Formulas for Calculating Port Lengths:

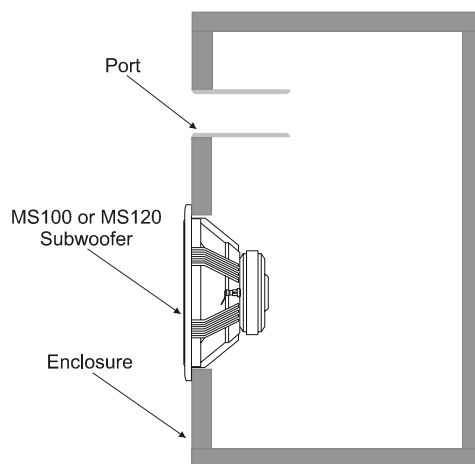
$$\text{Port Length (round)} = \frac{8466 \times \text{Internal Port Radius}^2}{\text{Volume} \times \text{Resonance Frequency}^2} - 1.463 \times \text{Internal Port Radius}$$

$$\text{Port Length (non-round)} = \frac{2695 \times \text{Internal Port Surface Area}}{\text{Volume} \times \text{Resonance Frequency}^2} - 0.825 \sqrt{\text{Port Surface Area}}$$

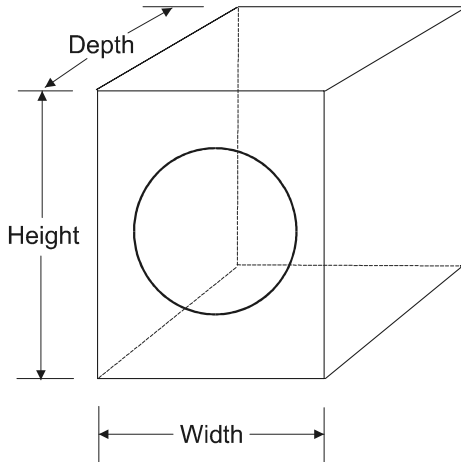
Sealed High Pass System Cut-a-Way Side View



Ported High Pass System Cut-a-Way Side View

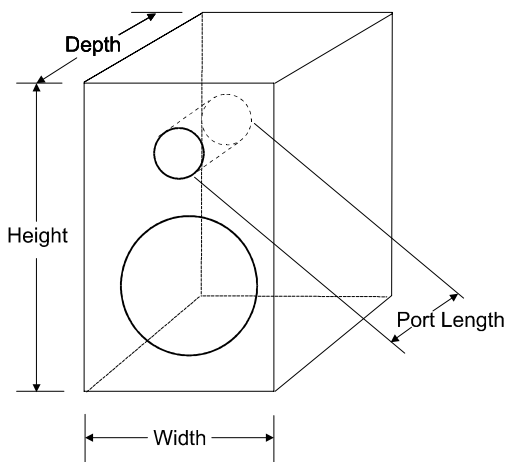


Sealed High Pass System Enclosure Dimensions



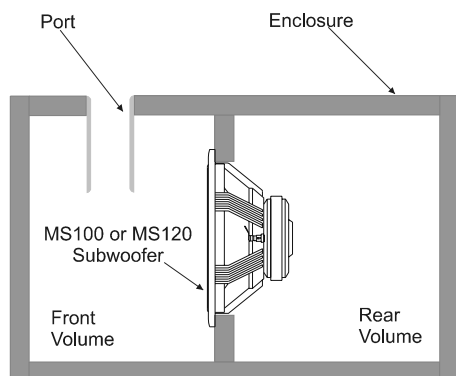
MS100				
Max Power	Volume	Width	Height	Depth
60	1.10	13.00	13.00	12.50
120	0.80	13.00	13.00	9.50
240	0.60	13.00	13.00	7.50
300	0.46	13.00	13.00	6.00
MS120				
Max Power	Volume	Width	Height	Depth
60	2.78	17.00	17.00	17.50
120	1.82	17.00	17.00	11.75
240	1.22	15.00	15.00	10.50
300	0.86	15.00	15.00	7.75

Ported High Pass System Enclosure Dimensions

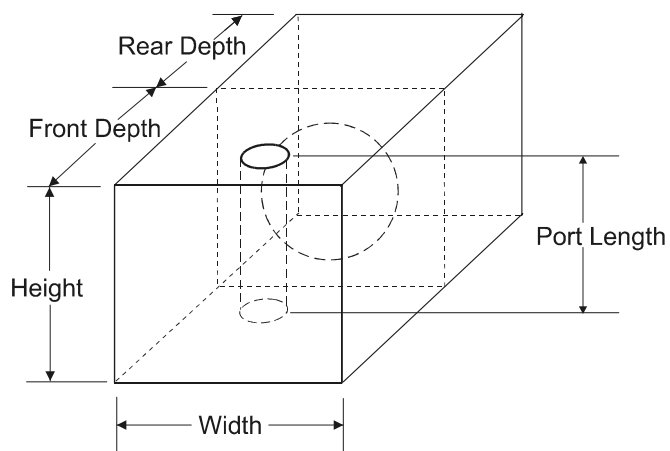


MS100						
Max Power	Volume	Resonance	Width	Height	Depth	Port Length
60	4.10	19	18.00	18.00	22.50	20.00
120	2.28	26	11.00	17.00	22.25	19.00
240	1.49	38	11.00	17.00	15.00	12.75
300	1.36	42	11.00	17.00	13.75	11.25
MS120						
Max Power	Volume	Resonance	Width	Height	Depth	Port Length
60	5.75	15	20.00	20.00	25.50	23.25
120	3.30	21	13.50	19.00	23.25	20.25
240	2.24	30	13.00	19.00	16.75	13.75
300	1.96	34	13.00	19.00	14.75	12.00

Sealed Band Pass System Cut-a-Way Side View



Sealed Band Pass System Enclosure Dimensions

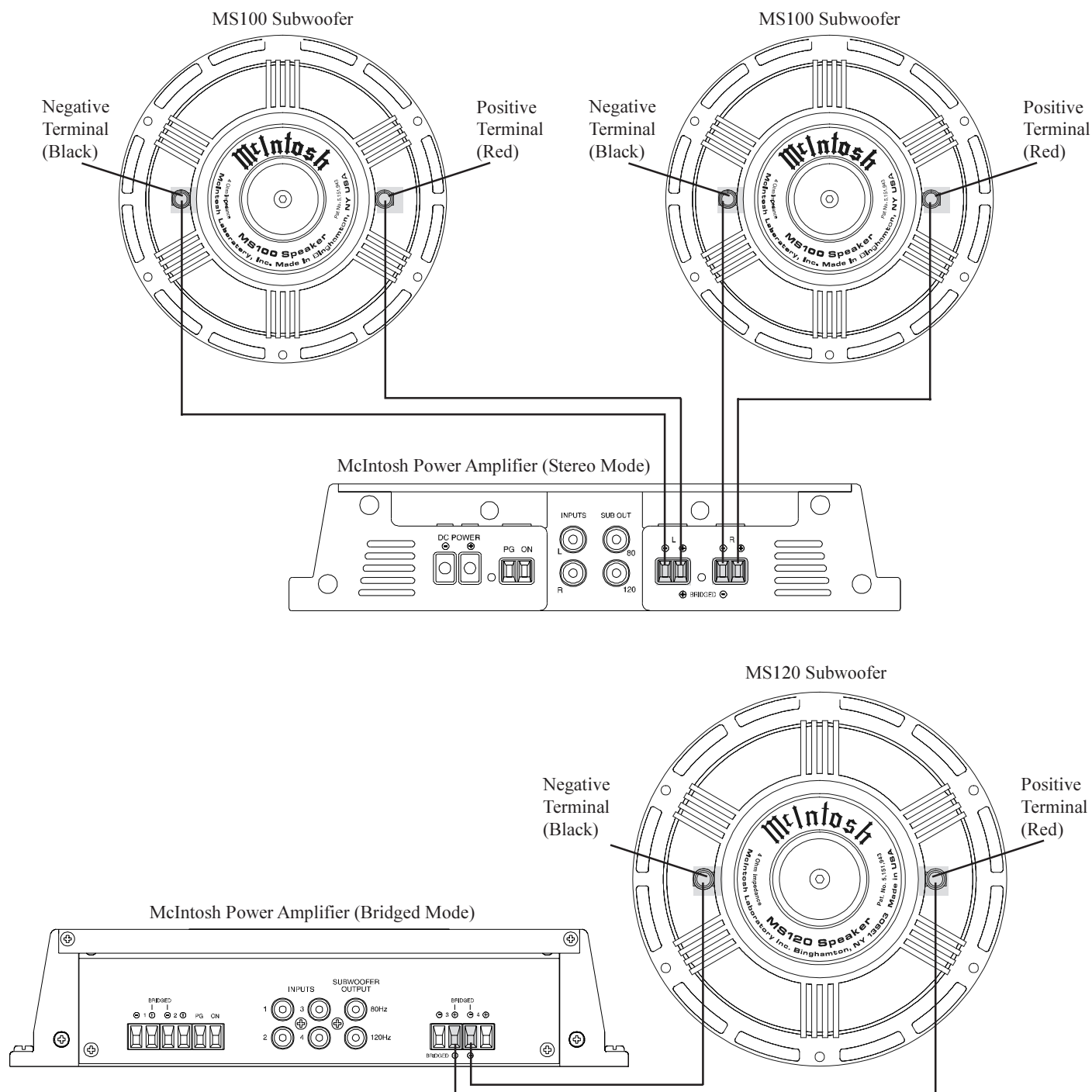


MS100								
Max Power	Rear Volume	Front Volume	Front Resonance	Width	Front Depth	Rear Depth	Height	Port Length
60	0.96	0.53	65	11.00	6.5	11.75	14.50	12.25
120	0.60	0.57	71	11.00	8.75	10.00	11.50	8.75
240	0.40	0.51	81	11.00	8.25	7.50	11.00	7.25
300	0.29	0.56	90	11.00	9.00	6.00	11.00	4.50
MS120								
Max Power	Rear Volume	Front Volume	Front Resonance	Width	Front Depth	Rear Depth	Height	Port Length
60	2.00	0.79	50	13.00	6.75	16.75	17.00	14.25
120	1.27	0.86	58	13.00	9.50	14.50	13.00	8.75
240	0.76	0.96	65	13.00	10.50	9.25	13.00	5.50
300	0.61	1.10	68	13.00	12.00	7.75	13.00	3.75

How to Connect

It is recommended that a dedicated power amplifier or amplifier channel be used to drive the subwoofer(s). McIntosh offers many different models of power amplifiers and most include a built-in electronic crossover. Shown below are two examples for connecting subwoofer(s) to a McIntosh Power Amplifier. A pair of MS100 subwoofers are con-

nected to the two channels of a McIntosh amplifier in stereo mode. A single MS120 subwoofer is connected to a McIntosh amplifier in bridged mode. Connect the Red and Black subwoofer terminals to the matching (+) and (–) terminals of the power amplifier. Refer to your amplifier owner’s manual for exact connecting details.



MS100 Subwoofer

MS120 Subwoofer

Basic Parameters

Maximum Music Power	300 Watts	350 Watts
Continuous Power	175 Watts	200 Watts
Frequency Response	20 Hz - 250 Hz	20 Hz - 250 Hz
Reference Sensitivity (SPL _o)	90 dB	91 dB
Nominal Impedance (Z _{nom})	4 Ohms	4 Ohms
Free Air Resonance (F _o)	23 Hz	22 Hz
Total Q (Q _{ts})	0.2	0.3
Equivalent Acoustic Volume (V _{as})	0.1 m ³	0.1 m ³
Voice Coil Overhang (X _{max})	6.4 mm	6.4 mm

Additional Parameters

Voice Coil Resistance (R _{evc})	3.2 Ohms	3.2 Ohms
Piston Area (S _d)	0.033 m ²	0.047 m ²
Flux Density x Wire Length in Gap (BL)	13 T·m	13 T·m
Impedance Maximum (Z _{max})	77 Ohms	58 Ohms
Reference Efficiency (η _o)	0.64 %	0.76 %
Mechanical Q (Q _{ms})	4.6	5.3
Electrical Q (Q _{es})	0.2	0.3
Mechanical Compliance (C _{ms})	696 μm/N	569 μm/N
Moving Mass (M _{md})	65 grams	86 grams
Moving Mass + Air Load (M _{ms})	68 grams	92 grams
Magnetic Gap Height (H _{ag})	12.7 mm	12.7 mm
Voice Coil Winding Height (H _{vc})	25.4 mm	25.4 mm
Maximum Stroke (H _{ag} + X _{max})	19.1 mm	19.1 mm
Motor Inductance (L _{evc} @ 1 kHz)	0.7 mH	0.7 mH
Motor Inductance (L _{evc} @ 20 kHz)	0.4 mH	0.4 mH
Motor Resistance (R _{em} @ 1 kHz)	2.6 Ohms	2.6 Ohms
Motor Resistance (R _{em} @ 20 kHz)	18.5 Ohms	18.5 Ohms
Resistance Constant (K _{rm})	8.4 mOhms	8.4 mOhms
Resistance Exponent (E _{rm})	0.65	0.65
Reactance Constant (K _{xm})	4 mH	4 mH
Reactance Exponent (E _{xm})	0.8	0.8

Dimensions

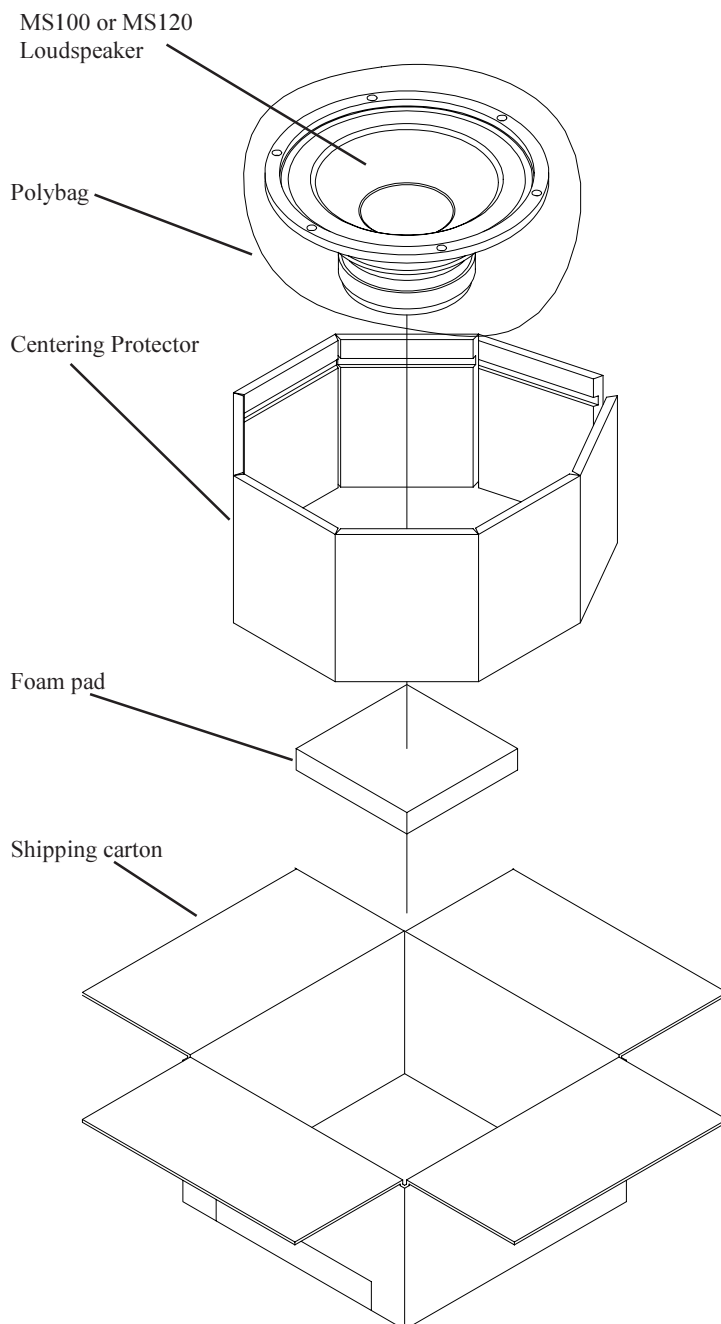
Overall Diameter	10 7/8 inches (276mm)	12 15/16 inches (328mm)
Overall Depth	5 3/8 inches (136 mm)	6 1/8 inches (155mm)
Mounting Depth	5 inches (127mm)	5 11/16 inches (144mm)
Mounting Hole Diameter	9 3/8 inches (238mm)	11 1/2 inches (292mm)
Occupied Volume	0.06 cubic feet (1.7 liters)	0.08 cubic feet (2.3 liters)

Weight

Net	12 lbs. (5.4kg)	13 lbs. (5.9kg)
In Shipping Carton	13.3 lbs. (6 kg)	14.5 lbs. (6.6kg)

Packing Instructions

In the event it is necessary to repack the equipment for shipment, the equipment must be packed exactly as shown below. Use the original shipping carton and interior parts only if they are all in good serviceable condition. If a shipping carton or any of the interior part(s) are needed, please call or write Customer Service Department of McIntosh Laboratory. Please see the Part List for the correct part numbers.



MS100 Shipping Carton Parts List

Quantity	Part Number	Description
1	034030	Shipping carton only
1	033872	Foam pad
1	033871	Centering Protector
1	033874	Polybag
1	049257	Shipping carton complete

MS120 Shipping Carton Parts List

Quantity	Part Number	Description
1	034031	Shipping carton only
1	033872	Foam pad
1	033873	Centering Protector
1	033875	Polybag
1	049258	Shipping carton complete

McIntosh®

McIntosh Laboratory, Inc.
2 Chambers Street
Binghamton, NY 13903

McIntosh Part No. 040609